Supervisor Sign:	Reg. No	CENTER: SURAT Uni. Seat No		
	NAVSARI AGRICUI NA	LTURAL UNIVERSITY VSARI		
THIRD SE	MESTER B.Sc. (AGRII END EXAMI)	L. BIOTECHNOLOGY) (REGULAR) NATION-2017-18		
COURSE NO. FB 232	TITLE: Ind	ustrial Microbiology and Fermentation Technolo	ogy (2-	+2)
	<b>PART 1: 0</b>	OBJECTIVES		
DATE:09/01/2018 DAY: TUESDAY		TIME: 9.00 TO 9.45 AM MARKS: 40.00		120
Q.1 Choose and write the each questions.	he correct answer in the	parenthesis provided in the right side of	(40.	0)
1) are curre	ently produced by ferment	tation Process.	(	)
A Lactic acid	A Lactic acid C Gluconic & Itaconic acid			
B Citric acid		D All of above		
2) Citric acid (2-hydrox)	y-1,2,3 propanetricarboxy	lic acid, C6H8O7) is widely distributed in	(	)
A Plant and animal t	issues	C Both A & B	(745 A)	13.7
B Plant and animal f	luids	D None of above		

3)	Vinegar is conversion of		(	)
	A Acetic acid to ethanol	C Ethanol to acetic acid	938	
	B Methanol to acetic acid	D Acetic acid to methanol		
4)	The main application of citric acid (70%) is in the		(	)
	A Food industry	C Both A & B		
	B Beverage industry	D None of above		
5)	Industrially important antibiotic producing organi	sms shall be isolated by	(	)
	A Direct plate technique	C Disk plate method		
	B Crowded plate technique	D Serial dilution method		
6)	Microbial production of is important for	r food applications, in the form of vinegar.	(	)
	A Citric acid	C Lactic acid		
	B Acetic acid	D All of above		
7)	Which bacteria is mainly used for ethanol and gly	cerol production?	(	)
	A Streptococcus Pyogens	C Staphylococcus aureus		
	B Saccharomyces cerevisiae	D Bacillus Sabtilis		
8)	are not currently being produced commen	cially by fermentation process.	(	)
	A Propionic acid	C Succinic acid		
	B Pyruvic acid	D All of above		
9)	Primary metabolite nucleiotides is used in		(	)
	A Sweetener	C Flavour enhancers		
	B Food industries	D All of above		
10)	Spores of A. Niger inoculated in shallow pans at .	for 4-14 days.	(	)
	A 37°C	C 45°C		
	B 25°C	D 75°C		
11)	Fermentation processes that involve the production	n ofhave been used in food	(	)
	preparation.			

A Acitic acid C Br





(A)

12)	Colonies showing antibiotic activity is indicated b	y the presence of a	ĩ	)
	A Pigmentation of bacteria	C Bacterial growth	X	,
	B Zone of inhibition	D Colony structure		
13)	is broadly distributed in nature, and	humans have used them in their natural	(	)
	sources since early ages.			
	A Organic acid	C Pyruvic acid		
	B Glutamic acid	D None of above		
14)	defined that fermentation is an	anaerobic reaction.	(	)
	A Louis Pasteur	C Antonie van Leeuwenhoek		/
	B Robert Koch	D Alexander Fleming		
15)	The first stage in the screening of microorganisms	s of potential industrial is their	(	)
Land Horden, #15	A Cultivation	C Identification	8	
	B Characterization	D Isolation		
16)	In Lag phase Metabolic activity of bacteria is	rate.	(	)
587938 <b>9</b> 3	A High rate	C Medium rate	X	
	B Low rate	D None of above		11
17)	Various factors like limit the growth du	ring Stationary phase.	(	- ) - r
,	A Accumulation of inhibitory	C Metabolites or end products and lack of		,
	re recommunation of minionory	biological space		
	B Exhaustion of available nutrients	D All of above		
18)	Recombinant DNA molecules are also known as		(	١
10)	A chimeric DNA	C TDNA	42	,
	R JONA	D None of above		
10)	Which Primary metabolite is used in food industri	lec?	1	<b>N</b>
19)	A Lucino	C Citric acid	ι,	1
	A Lysine D Nucleistides	D Clutemie esid		
20)	B Nucleiondes	D Giulamic acid	1	x
20)	In which phase the number of dividing cells equal	is the number of dyeing cells?	Ç	)
	A Lag Phase	C Stationary Phase		
0.13	B Log Phase	D Death phase		x
21)	The discovery of citric acid producer strains	of A. niger, which could grow at pH values	C	)
	around 2.5 to 5.5.	C 1015		
	A 1917	C 1915		
001	В 1920	D 1918	1	Ň
22)	Industrial important microorganisms are		C	)
	A Bacteria, fungi, algae, virus	C Bacteria, actinomycets, algae, virus		
	B Fungi, bacteria, actinomycets, virus	D Fungi, algae, bacteria, actinomycets	2	×.
23)	tonnes of citric acid are produced ever	y year by termentation.	(	)
	A 1.5 million	C 1.2 million		
	B 1.7 million	D 1.0 million		Ň
24)	What is used to screen organic acid production in	microbes?	(	)
	A Sodium carbonate	C Calcium carbonate		
	B Calcium oxide	D Hydrogen peroxide	28	
25)	mainly depends on the phenomenon of Fo	ermentation.	(	)
	A Pharmaceutical Microbiology	C Environmental microbiology		
	B Industrial microbiology	D None of above	(200)	<b></b>
26)	Saccharomyces cerevisiae is mainly used for the		(	)
	A Glycerol production	C Both A & B		
	B Ethanol production	D None of above		

27)	To differentiate lactose and non-lactose fomenters	s the medium used is	(	)
	A Mac Conkey's medium	C Stuart's medium		and.
	B Citrate medium	D Sugar medium		
28)	Organisms that have been genetically modified in	clude micro-organisms such	(	)
	A Bacteria and yeast	C fish and mammals	ð.	~
	B Plants	D All of above		
29)	ability to transfer genetic material to	plants in naturally.	(	}
	A R. leguminosarum	C R. trifoli	48	۰
	B R. phaseoli	D Agrobacteriums		
30)	Genetically modified bacteria are used to produce	the protein insulin to treat	(	)
1216	A HIV	C Kidney diseases	10	е 
	B Diabetes	D Lung diseases		
31)	From the following which enzymes have huge eco	pnomic potential in fermentation industry?	(	)
	A Enzymes produce from animals	C Microbial enzymes	62 -	10
	B Plant enzymes	D All of above		
32)	During microbial growth experiment, if you meas	ure 10 cells of that microbe is dividing and	(	)
	10 cells are dying at same time, Which phase it w	ould be?	19	2015 2015
	A Log Phase	C Lag Phase		
	B Stationary Phase	D Death Phase		
33)	Which two phases are reversible to each other?		(	)
	A Lag, log	C Death, lag	68 	202
	B Lag, stationary	D Death, log		

( )

( )

( )

( )

( )

( )

( )

( )

34)	If you want to observe a particular protein produc	tion in a fermentation batch, at which page
	you will observe the protein production?	
	A Log Phase	C Lag Phase
	B Stationary Phase	D Death Phase
35)	Which primary metabolite is a precursor of aspart	tame?
	A Glutamic acid	C Lysine
	B Citric acid	D Phenylalanine
36)	Metabolites are also known as central r	netabolites.
	A Primary	C Both A and B
	B Secondary	D None of above
37)	From the following which primary metabolites ar	e used as flavour enhancer?
	A Glutamic acid and lysine	C Lysine and nucleotides
	B Glutamic acid and nucleotides	D Lysine and citric acid
38)	From the following which primary metabolite is u	used to increase oil recovery?
	A Citric acid	C Polysaccharides
	B Phenylalanine	D Nucleotides
39)	Which primary metabolite is used for feed supple	ment?
	A Glutamic acid	C Phenylalanine
	B Citric acid	D Lysine
40)	From the following which is not used in food indu	istry?
	A Ethanol	C Polysaccharides
	B Vitamins	D Citric acid
41)	Genetic modification involves	of genes.
	A Insertion	C Both A & B
	B Deletion	D None of above

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42)	metabolites are also known as special	metabolites	(	)
ā.	A Primary	C Both A & B	(	,
	B Secondary	D None of bove		
43)	Commonly, secondary metabolism occurs in	******	(	)
	A Filamentous bacteria	C Spore forming bacteria	•	/
	B Fungi	D All of above		
44)	are essential products for survival of o	organisms.	(	)
	A Primary metabolite products	C Both A & B		/
	B Secondary metabolite products	D None of bove		
45)	ability to transfer genetic material to	animal cells in naturally.	(	)
8	A. Influenza viruses	C Rabies viruses		1
	B Herpes-viridae	D lentiviruses		
46)	Secondary metabolites are produced during		(	)
1	A Trophophase	C Idiophase		<i>(</i>
	B Log Phase	D Lag Phase		
47)	Which statement is true for secondary metabolism		(	'n
	A All microbes undergo secondary metabolism	C Proteins and lipids are produced during		う
		secondary metabolism		
	B Antibiotics are produced during secondary	D Taxonomic distribution pattern is same		
	metabolism	in primary and secondary metabolism		
48)	Genetic engineering made possible through the dis	covery of DNA and the creation of the first	(	)
	recombinant DNA molecules by Paul Berg in			<u>8</u>
	A 1977	C 1972		
	B 1970	D 1974		
49)	consist genes (DNA) of two different	ent species.	(	)
2	A Recombinant DNA	C Both A & B		<u>8</u>
	B Chimeric DNA	D None of bove		
50)	Which is not related to human growth hormone?		(	)
<i>,</i>	A Stimulates growth	C Regeneration		0
	B Cell reproduction	D All are related		
51)	BHI is used for diabetes treatment, what is full for	m of it?	(	)
,	A Biosynthetic Human Insulin	C Biosynthetic Hormone Insulin		ħ
	B Biosystemic Human Insulin	D Biosystemic Hormone Insulin		2
52)	Which recombinant protein is used for manufactur	ing in cheese industry?	(	)
<i>.</i>	A Envelop protein	C Single cell protein	·	
	B Bovine chymosin	D Interferon		
53)	are proteins made and released by host cell	s in response to the presence of pathogens.	(	)
	A Envelop protein	C Single cell protein	1	
	B Bovine chymosin	D Interferon		
54)	Phosphatase and Co-agulase enzyme are main diag	nostic features of	(	)
	A E.coli	C S.thypi		1000
	B S. aureus	D B.subtilis		
55)	explained that living organisms are resp	onsible for lactic acid fermentation.	(	)
	A Antonie van Leeuwenhoek in 1857	C Louis Pasteur in 1857	0451	250
	B Alexander Fleming in 1857	D Robert Koch in 1857		
56)	Extraction of fermentation product should		(	)
	A Consume less time	C Give high quality end product	62	
	D. Low costly	D All of above		

.





57)	Which is not related to efficient recovery of	ferment	ation products?	ť	1
	A Speed of operation	С	Number of equipments	2	00
	B Type of equipment	D	Size of equipment		
58)	Full form of ATCC is			(	5
	A American Type Culture Collection	С	American Type Cell Colony	3	
	B American Type Cell Culture	D	American Type Culture Colony		
59)	Full form of CMI is Commonwealth		••••	(	)
	A Microbiological Institute	C	Mycological Industry	85	
	B Mycological Institute	D	Microbiological Industry		
60)	Short form of Fermentation Research Institut	e is		(	
46855 - 96	A FRI.	, C	FERI		
	B FREI	D	FERM		
61)	Full form of RIA is			(	
	A Research Institute for Antimicrobes	С	Research Institute for Antibiotics		
	<b>B</b> Research Industry for Antibiotics	D	Research Industry for Antimicrobes		
62)	In which special technique for microbial isola	ation use	es UV irradiation?	(	
	A Water treatment	C	Plant treatment		-
	B Air treatment	D	Soil treatment		
63)	In soil treatment, at what range of temperatur	e is use	d to isolate microbes?	(	
1997-1997- <b>1</b> 99	A 70-120°C	С	100-120 °C	``	
	B 50-80 °C	D	37-70°C		
(1)	Mouted and			2	8

64)	Neutral red		(	)
	A Increase buffering capacity	C Promotes microbial growth		
	B Is an pH indicator dye	D All of the above		
65)	Greater buffer capacity of medium screen microb	es having capability to produce	(	)
	considerable quantities of the			
	A Antibiotics	C Protein		
	B Base	D Acid		
66)	In laboratory diagnosis contain direct microscopy	skin scales are examined in	(	)
	A NACL	C KMNO4		
	B KOH	D All of above		
67)	Which technique is used for screening of antibioti	ic producing microbes?	(	)
	A Culture plate	C Pour plate		
	B Crowded plate	D Culture colony		
68)	Antibiotic activity can be measured by		(	)
	A Presence of zone of inhibition	C Presence of contamination		
	B Absence of zone of inhibition	D Absence of contamination		
69)	Secondary screening can be		(	)
	A Qualitative	C Conducted on agar plates		
	B Quantitative	D All of above		
70)	If you are working on microbial growth measuren	nent and if you find that microbe is	(	)
	producing penicillin at one particular phase, which	h phase it would be?		
	A Log Phase	C Lag Phase		
	B Stationary Phase	D Death Phase		34
71)	The bubbling observed when sugar and starchy m	aterials underwent a transformation to	(	)
	yield			
	A Alcoholic beverages	C Both A & B		
	D Vitamino	D Mana af baua		



D None of bove

72)	explained that living organisms are re-	esponsible for lactic acid fermentation.	(	)
	A Antonie van Leeuwenhoek	C Robert Koch	`	1
	B Louis Pasteur	D Wehmer		
73)	Lactobacillus bulgaricus is use for	important fermentation products.	(	)
	A Industrial solvents	C Beverages		,
	B Food and pharmaceutical	D All of above		
74)	Candida albicans is responsible forof	the human infections.	(	)
	A 50%	C 100%		
	B 90%	D 80%		
75)	Bacillus subtilis is use for importan	t fermentation products.	(	)
4	A Starch hydrolysis	C Industrial solvents		,
	B Solvents	D Food and pharmaceutical		
76)	Secondary screening should determine whether chemical compounds	microorganisms are actually producing new	(	)
	A Described previously	C Has a simple, complex, or even a macromolecular structure		
	B Not previously described	D Both B & C		
77)	demonstrated that bacteria cause	souring in milk and later on the role of	(	)
	microorganisms in food spoilage show the way	to the process of pasteurization.	Ċ	
	A Louis Pasteur in 1860	C Robert Koch in 1860		
	B Alexander Fleming in 1860	D Wehmer in 1860		
78)	can tolerate 5-10% concentration	of llithium chloride. Sodium chloride	(	1

78)		concentration of Ilithium chloride, Sodium chloride	(	)
	tellurite and polymyxin.			
	A E.coli	C S.thypi		
	B B.subtilis	D S.aureus		
79)	while growing on a carbohydrate m	oduction: can accumulate high amounts of citric acid edium.	(	)
	A S. aureus	C B. Subtilis		
	B A.niger	D E. Coli		
80)	In 1893observed that citric grown on sugar solutions.	acid was produced by some species of Penicillium when	(	)
	A Robert Koch	C Michel adanson		3

B Wehmer

D Antonie van Leeuwenhoek

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THIRD SI	EMESTER B.Sc. (	AGRIL. BIC	<b>TECHNOLOGY) (REGULAR)</b>
	END E	XAMINATI	ON-2017-18
COURSE NO. FB232	TITLE: INDUST	TRIAL MICROB	BIOLOGY AND FERMENTATION TECHNOLOGY(2+2)
	PAI	RT II : SUBJ	ECTIVE
DATE: 09-01-18	a a a		TIME: 9.45 TO 11.30 M
DAY: TUESDAY			MARKS: 40.00

### Q-1 Answer in short (any six)

(06.00)

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- 1. What is Trophophase?
- 2. What is basic principle for production of genetically modified organisms?
- 3. Define fermentation.
- 4. Which microbial strain is useful for commercial production of citric acid? Why?
- 5. How screening is useful for new product production?
- 6. Processes that produce recombinant products.
- 7. Why pilot plant study is required?

## Q-2 Answer in brief (any seven)

- 1. List the criteria for selection of recovery process in fermentation.
- 2. What are the uses of genetically modified bacteria?
- 3. Explain about applications of citric acid.
- 4. Give different recovery steps for citric acid production.
- 5. What are different steps in scale up process?
- 6. What are the strategies for isolation of industrially important microbes?
- 7. Explain about primary screening of antibiotic producing microorganisms.
- 8. Explain criteria used for selection of organisms in fermentation development.

## Q-3 Answer in detail (any five)

- 1. Explain in detail on the stages of fermentation process.
- 2. Describe in detail about log phase, lag phase and stationary phase for microbial growth.
- 3. What are the benefits and harmful effects of genetically modified products?
- 4. Draw a labeled schematic diagram of industrial fermentor.
- 5. List of five categories of fermentation process and explain in detail about processes that produce microbial enzyme.
- 6. Describe different parameters that affect in bioprocess of citric acid.

## (20.00)

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# NAVSARI AGRICULTURAL UNIVERSITY NAVSARI FIFTH SEMESTER B.Sc. (AGRIL. BIOTECHNOLOGY) (REGULAR) END EXAMINATION-2017-18

# COURSE NO.: FB 355 TITLE: Technological Applications in Food Processing (1+1) <u>PART-II SUBJECTIVE</u>

DATE: 01/01/2018	TIME: 9.45 to 11.30 AM
DAY: Monday	MARKS: 40.00

Q. 1.	Define/Explain the following (Any five)			
	1. Single Cell Protein 4. Food			
	2. Biotransformations 5. Nanoscience			
	3. Flavor 6. Polymer nanocomposites			
Q. 2.	Answer the following questions (Any two)	(4.00)		
	<ol> <li>Draw flow-chart for biotechnological routes for production of bioflavor.</li> </ol>			
	<ol><li>Describe the various reactions involved in biotransformation method.</li></ol>			
	<ol><li>Write the advantages of polymer based nanocomposites.</li></ol>			
Q. 3.	Answer the following questions (Any two)	(4.00)		
	1. Describe the production of vanillin by Pseudomonas fluorescens.			
	2. Write-down the procedure for production of Single Cell Protein.			
	3. Briefly describe the bio-plastics with the advantages.			
Q. 4.	Differentiate the following (Any two)	(5.00)		
	1. Fossil carbon sources and Renewable carbon sources			
	2. Plant tissue culture method and Enzymatic method			
	3. Diacetyl and Pyrazines			
Q. 5.	Discuss the role of following enzymes in food industry (Any three)	(12.00)		
	1. Proteases			
	2. Glucose oxidase and catalase			
	3. Lactase			
	4. Pectinase			
Q. 6.	Answer the following question (Any two)	(10.00)		
	1. Briefly describe the classification of flavors based on the chemical structure.			
	2. Write the advantages of Single Cell Protein.			
	3. Explain the use of nanotechnology in food industry.			
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### NAVSARI AGRICULTURAL UNIVERSITY NAVSARI

## FIFTH SEMESTER B.Sc. (AGRIL. BIOTECHNOLOGY) (REGULAR) END EXAMINATION-2017-18

COURSE NO.: FB 355 TITLE: Technological Applications in Food Processing (1+1) <u>PART-I OBJECTIVE</u>

DATE: 01/01/2018	TIME: 9.00 to 9.45 AM
DAY: Monday	MARKS: 40.00

Q.1. Choose and write the correct answer in the parenthesis provided in the (40.00) right side of each question.

1.	Flavor consists of			(	)
	A) Taste	B)	Aroma		
	C) Both A and B	D)	None		
2.	Lemonene is a type of			(	)
	A) Terpenoid	B)	Flavonoid		
	C) Sulfur compound	D)	None		
3.	Which of the following compound is ma	inly	responsible for aroma of banana?	(	)
	<ul> <li>A) Isopentyl acetate</li> </ul>	B)	Citral		
	C) Benzyldehyde	D)	All of the above		
4.	Which of the following compound is ma	inly	responsible for aroma of lemon?	(	)
	<ul> <li>A) Isopentyl acetate</li> </ul>	B)	Citral		
	C) Benzyldehyde	D)	All of the above		
5.	Skimmed milk is an example of	·		(	)
	A) Aerosol	B)	Sol		
	C) Foam	D)	Solid foam		
6.	Smoke for flavoring food is an example	of		(	)
	A) Aerosol	B)	Sol		
	C) Foam	D)	Solid foam		
7.	The advantage of GM foods over conven	ntion	al food is	(	)
	<ul> <li>A) Pest resistance</li> </ul>	<b>B</b> )	Herbicide resistance		
	C) Cold tolerance	D)	All of these		
8.	HPP stands for			(	)
	A) High Pressure Processing	B)	High Power Processing		
	C) Hot Pressure Processing	D)	None of the above		5
9.	PEF stands for			(	)
	A) Pulse Electric Field	B)	Poor Electric Field		
	C) Pulse Electromagnetic Field	D)	None of the above		20
10.	Food grade ethanol is produced by		<b>.</b>	(	)
	A) Yeast	<b>B</b> )	Bacteria		
541830	C) Both A and B	D)	None of the above		
11.	Which of the following can be obtained f	from	Aspergillus niger?	(	)
	A) Lipase	B)	Glucose Oxidase		
	C) Pectinase	D)	All of the above		

12.	Sunscreen contains nanoparticles of			(	)
	A) Zinc oxide	<b>B</b> )	Tellurium oxide		1
	C) Silicon oxide	D)	None of the above		
13.	Bacillus subtilis is the source of			(	Y
	A) Protease	<b>B</b> )	Pectinase		1
	C) Cellulase	D)	All of the above		
14.	Cellulase is mainly obtained from			(	)
	A) Aspergillus	B)	Bacillus	`	/
	C) Rhizopus	D)	None of the above		
15.	is used as a flavoring age	ent.		(	)
	A) Tumeric	<b>B</b> )	Saffron	`	/
T.	C) Cardamom	<b>D</b> )	Tamarind		
16.	The technical name for freeze drying	is	······	(	)
	A) Lyophilization	<b>B</b> )	Sublimation		1
	C) Condensation	D)	Evaporation		
17.	Which of the following compound is a	mainly i	responsible for aroma of almonds?	(	)
	A) Isopentyl acetate	B)	Citral		/
	C) Benzyldehyde	D)	All of the above		
18.	Single cell protein is prot	tein.		(	)
	A) Algae	<b>B</b> )	Fungal		/
	C) Bacterial	D)	All of the above		
19.	Which of the following is a source of	SCP?		(	)
and and a		D		S.	/

	C)	Pichia	D)	All of the above		
20.		is used for the food labellin	g.		(	)
	A)	Nanocoatings	B)	Nano based agrochemicals		
	<b>C</b> )	Nanosensors	D)	All of the above		
21.	Usa	ge of enzymes in breaking starch into	o sug	ars in production of buns and white	(	)
	brea	ad is considered as usage of				10.
	A)	Brewing industry	B)	Paper industry		
	<b>C</b> )	Food industry	D)	Detergent industry		
22.	Mir	nimum energy required for starting re	actio	n is called	(	)
	A)	Enzymatic energy	B)	Catalysis energy		
	<b>C)</b>	Solvent energy	D)	Activation energy		
23.	All	enzymes are considered as			(	)
	A)	Oxygen based acids	B)	Carbon based acids		
	C)	Nitrogen based acids	D)	Proteins		
24.	Phy	siologist who used term 'enzyme' for	first	time is	(	)
	A)	John Oscar	B)	Oscar Hertwig		
	C)	Winhelm Kuhne	D)	Ernst John		
25.	ln d	lough, starch is digested into sugar the	rougl	1	(	)
	A)	Amylase	B)	Protease		
	C)	Maltase	D)	Lactase		
26.	Glu	cose oxidase is generally from			(	)
	A)	Saccharomyces cerevisiae	B)	Pseudomonas fluorescens		
	C)	Aspergillus niger	D)	Trichoderma viride		
27.		involves building complex	sys	tems by combining small atomic-	(	)
	leve	el components.				
	A)	Top-Down Approach	B)	Bottom-Up Approach		
	C)	Both A and B	D)	None of the above		

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28.	. Lactose sugar of milk is converted into Lactic acid by			(	5
	A) Streptococcus lactis	<b>B</b> )	Lactobacillus sp.	22340	
	C) Candida utilis	<b>D</b> )	K. Fragilis		
29.	Citric acid is produced by			×(	)
	A) Aspergillus niger	<b>B</b> )	Saccharomyces cerevisiae		5
	C) Pseudomonas fluorescens	<b>D</b> )	Trichoderma viride		
30.	Most commonly used organism in SC	2P is		(	)
	A) Bacillus	<b>B</b> )	Lacto bacillus		
	C) Spirulina	<b>D</b> )	Pseudomonas		
31.	Citric acid is used as an acidulant is -			(	)
	A) Food	<b>B</b> )	Confectionary		81
	C) Beverages	<b>D</b> )	All of the above		
32.	Which organisms used for SCP produ	iction sh	ows the highest growth rate?	(	)
	A) Bacteria	<b>B</b> )	Algae		32
	C) Yeast	<b>D</b> )	Filamentous fungi		
33.	Which organism has been used for	comme	ercial SCP production from starch	(	)
	hydrolysates?				.9522
	A) Candia utilis	<b>B</b> )	Saccharomyces cerevisiae		
	C) Fusarium gaminearum	D)	Kluyveromyces fragilis		
34.	are used to recover prote	eins fron	n blood.	(	)
	A) Glucose oxidase	<b>B</b> )	Catalase		0000
	C) Lactase	D)	Proteases		
35.	Methane is utilized by which bacteriu	ım?		(	)
	A) Methaomonas methanica	<b>B</b> )	Pseudomonas methanica	12	
	() Madada a second a second a latera	ní	All of the above		

	C) Methylococcus cupsulatus	D)	All of the above		
36.	In France, SCP production using K. fragilis uses which substrate? (				
	A) Whey	<b>B</b> )	Molasses		
	C) Starch hydrolysate	D)	Confectionary effluent		
37.	In USA, Torula yeast (candida utilis	) has	been used for commercial SCP	(	)
	production using which as a substrate?				
	A) Methanol	B)	Ethanol (from fermentation)		
	C) Ethanol (from ethylene)	D)	Dairy effluent		
38.	Which one is used in production of alcol	hol?		(	)
	A) Saccharomyces cerevisiae	B)	Tonilopsis utilis		
	C) Clostridium botulinum	D)	Leuxonostoc citrovorum		
39.	The yeast generated during the fermenta	tion o	of beer is generally separated by	(	)
	A) Centrifugation	<b>B</b> )	Filtration		
	C) Cell disruption	D)	All of the above		
40.	Wine is obtained after alcoholic ferment	ation	of	(	)
	A) Rice	<b>B</b> )	Wheat		
	C) Grapes	D)	Barely		
41.	Cocoa flavor can be produced form the o	cultur	e of	(	)
	A) Theobroma cacao	B)	Staphylococcus aureus		
	C) Coleus blumei	D)	None of the above		
42.	enzyme is used for releasir	ng gly	cosidically bound volatile terpenes	(	)
	and flavor precursors.				
	A) Protease	B)	Lipases		
	C) Glucosidases	D)	Terpenols		

43.	The	e coconut like flavor attributed to the		with a chain length of 8-9	(	)
	carl	oon atoms.				í.
	A)	Pyrazines	B)	Lactones		
- 72 - 72	<b>C</b> )	Diacetyl	D)	Terpenes		
44.	Eug	genol is known to produce	fla	vor.	(	)
	A)	Garlic	B)	Clove		
	C)	Basmati rice	D)	Peppermint		
45.	Alc	ohols, esters and lactones can be obta	ined	by pathway of lipids.	(	)
	A)	Mevalonic acid pathway	B)	Acetate or polyketide pathway		
	<b>C</b> )	Shikimic acid pathway	D)	β-oxidation		
46.	The	lipases from have been	1 use	d to catalyze the synthesis of many	(	)
	flav	ors in aqueous media.				
	A)	Staphylococcus aureus	B)	Staphylococcus epidermidis		
	<b>C</b> )	Staphylococcus capitis	D)	Saccharomyces cerevisiae		
47.	The	production of acetic acid has been at	ttribu	ited by	(	)
	A)	Propionibacterium	B)	Lactobacillus plantarum		
	C)	Aspergillus niger	D)	Lactobacillus bulgaricus		
48.	Mer	thofuran is known to produce		flavor.	(	)
	A)	Vanillin	B)	Clove		- C.
	<b>C</b> )	Cinnamon	D)	Peppermint		
49.		is a single reaction catalyz	zed b	y enzymes derived from microbial	(	)
	sour	ces.				-61
	A)	Biotransformation	B)	De Novo synthesis		
	C)	Plant tissue culture	D)	Enzymatic method		
50.	Lim	onene terpene is known to have		flavor note.	(	)
	A)	Herbal	B)	Spicy		
	C)	Floral	D)	Citrus		
51.		SCP has about 60% crude p	orotei	n.	(	)
	A)	Algal	<b>B</b> )	Fungi		
	<b>C</b> )	Yeasts	D)	Bacteria		
52.	SCP	intended for human use must have -		nucleic acids.	(	)
	A)	< 1%	B)	<2%		
	C)	$\leq 1\%$	D)	≤2%		
53.		was the first to ban the use	of SC	CP using methanol.	(	)
	A)	Canada	B)	Mexico		
	<b>C</b> )	France	D)	Japan		
54.	Tec	hnique of SCP is introduced by			(	)
	A)	Gregor Mendel	B)	Louis Pasteur		
	C)	Professor Scrimshaw	D)	Ian Wilmot		
55.	•	is one of the fossil carbon se	ource	es.	(	)
	A)	Carbon dioxide	B)	Whey		
	C)	Liquid hydrocarbons	D)	Starch hydrolysate		
56.	Sing	gle cell production is enabled through			(	)
	A)	Batch operation systems	B)	Continuous operation systems		
	<b>C</b> )	Discontinuous operation system	D)	Unique operation system		
57.		use CO2 and sunlight as a su	ubstra	ate which are without any cost.	(	)
	A)	Fungi	B)	Yeast		
	C)	Algae	D)	Bacteria		

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58.	Filamentous fungi are capable of producing terpenes by			(	١	
	A)	De Novo synthesis	<b>B</b> )	Biotransformation		10
	C)	Enzymetic method	D)	Plant tissue culture		
59.	Wh	ich of the following support growt	h of Ca	ndida utilis in SCP production?	(	)
	A)	H <sub>2</sub> and CO <sub>2</sub>	<b>B</b> )	Gas oil		·
	<b>C</b> )	n-alkane	<b>D</b> )	Ethanol		
60.	Wh	ich of the following support gro	wth of	Saccharomyces cerevisiae in SCP	(	)
	pro	duction?			0	2
	A)	Cellulose	<b>B</b> )	Starch		
	<b>C</b> )	Sugar	D)	None of the above		
61.	Wh	ich of the following is a major sou	rce of g	lucose oxidase?	(	)
	<b>A</b> )	Penicillium	<b>B</b> )	Aspergillus		đ.,
	<b>C</b> )	Both A and B	<b>D</b> )	None of the above		
62.	Wh	ich of the following is a major sou	rce of p	ectinase?	(	)
	A)	Aspergillus	<b>B</b> )	Arthrobacter		157
	<b>C</b> )	Rhizopus	<b>D</b> )	None of the above		
63.	Bee	er is resistance to infection because			(	)
	A)	Low pH	<b>B</b> )	Presence of ethanol		
	<b>C</b> )	Anaerobic environment	D)	All of the above		
64.	Swe	eet, sour, salty, bitter and aromas o	f fruits	and vegetables are factors.	(	)
	A)	Appearance	<b>B</b> )	Flavor	•	
	C)	Textural	D)	Color		
65.	Flay	vor of a food product is a combinat	ion of -		(	)
	A)	Taste and smell	B)	Taste and appearance		1
		View and the	1			

	<b>C</b> )	Smell and appearance	D)	None of the above		
66.	ISO :	stands for			(	)
	A)	International Organization for	B)	Indian Standards Organization		1.0
		Standardization				
	C)	Indian Standardization	D)	International Standardization		
		Organization		Organization		
67.	The	flavoring compound obtained from v	vanil	la is	(	)
	A)	Vanilinin	B)	Vanin		
	C)	Vanillin	D	Valin		
68.	Meth	nanol is obtained from			(	)
	A)	Mint	B)	Nutmeg	0.80	
	Ć	Mace	D	None of the above		
69.	Soft	drinks are packaged in PET bottles.	PET	stands for	(	)
	A)	Polyethylene terephthalate	B)	Polyester terephthalate		
	C)	Polyether terephthalate	D)	None of the above		
70.	Whie	ch of the following is most expensive	e in S	SCP production?	(	)
	A)	Substrate	B)	Fermentation		
	C)	Recovery	D)	None of the above		
71.	Whie	ch of the following substrate is used	in S	CP production?	(	)
	A)	Methane	B)	Methanol		
	C)	Ethanol	D)	All of the above		
72.	Com	mercially ethanol is produced by			(	)
	A)	Saccharomyces cerevisiae	B)	Kluyveromyces fragilis		
	<b>C</b> )	Both A and B	D)	None of the above		

73.	pKa of an acid is the negative log of its consta	ant. (	)
	A) Association B) Dissociation	ľ	
	C) Both A and B D) None of the	above	
74.	Lactic acid contribute which of the following flavor note?	(	)
	A) Smooth sourness B) Persistent so	ourness	
	C) Mild dairy aroma D) All of the al	oove	
75.	Synonym used for beta-carotene is	(	)
	A) Provitamin A B) Food orange	es	
	C) Natural yellow 26 D) All of the at	oove	
76.	Which of the following can be used in particle size analysi	s? (	)
	A) LALLS B) NIR		
8	C) DLS D) All of the all	ove	
77.	SEM stands for	(	)
	A) Spectroscoy Electron Microscope B) Static Electron	ron Microscope	,
	C) Scanning Electron Microscope D) Standard El	ectron Microscope	
78.	TEM stands for	1	)
	A) Tunneling Electron Microscope B) Transmissio	on Electron	1
	Microscope		
	C) Transform Electron Microscope D) None of the	above	
79	Nano refers to	(	Ň
	A) $10^6$ B) $10^9$		,
	$O 10^{-6}$ D 10 <sup>-9</sup>		
90	Which of the following product is obtained using formants	tion?	>
00.	which of the following product is obtained using fermenta	(inon? (	ļ

- A) Antibiotics
- C) Ethanol

- B) SCPD) All of the above

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